

MIXED MARTIAL ARTS
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Mixed martial arts is a combination of Asian and western combat sports.

MMA is basically unarmed combat where a blow is struck which may reasonably be expected to inflict injury. Submission holds are also part of the MMA.

The origin of MMA was in the early 1900's when the Brazilian Graci family modified ju jitsu to emphasize technique over strength - their motto was "anything goes". In the 1990's there was a surge of popularity in the United States. Men and women both compete. The event is held in a caged arena. Non-championship bout consists of 3 rounds, championship bout 5 rounds.

EQUIPMENT

Male – no shoes, 4-6 ounce gloves, mouth guard, groin protection

Female – same as the male plus a chest guard, no groin protection

MMA gloves are 4-6 ounces as compared to the boxing gloves of 10-12 ounces
Strike velocity of 6.5 ounce glove is 2.7 times faster than a 16 ounce glove

The winner in the contest is chosen by:

- A knock-out – fighter loses consciousness. The match is over. There is no mandatory 8 count.
- A technical knock-out - the referee stops the fight (fighter unable to defend self)
- Submission fighter - "taps-out" (submits)
- The fighter's corner or ringside doctor stops the fight

Submission holds are:

1. Choke out - The choke out is a bilateral carotid artery occlusion where the contestant loses consciousness
2. Joint lock - The joint lock is where a major joint, hip, knee, ankle, shoulder, elbow or wrist is forced to an extreme range of motion. Submission occurs when the athlete taps the opponent indicating that the participant is giving up.

Losers have 3 times as many injuries as winners

Bouts ending in a knock-out or technical knock-out have 2 times the incidence of injuries with bouts ending in submission

A ban for this sport was called for in the United States, Canada, Australia and the United Kingdom. In 1996 the sport was banished in 40 US states. USA Senator John McCain of Arizona called MMA "human cock fighting".

The Ultimate Fighting Championship, largest but not the only MMA promoter in the United States, cooperated with athletic commissions and redesigned the rules of MMA.

These rules brought the sport under reasonable control but still left the door open for a vast array of violent actions that unfortunately fight fans desire.

- A. The incidence of injury:
 - o 304 fighters, 152 fights over 2 years
 - o 60% had no injury
 - o 40% were injured.
- B. Bouts ending in a knock-out or technical knock-out had 2 times the incidence of bouts ending in submission.
- C. Losers suffer 3 times as many injuries as winners.

CONCERNS FOR THE TEAM PHYSICIAN

CHOKER HOLD – there has been only one reported problem from the choke hold and that was atherosclerotic plaque in the carotid artery.

CONCUSSION – this is a real problem. Knock out and TKO occur in 31% of the matches. With a knock-out, 30 seconds before match stopped, 5-6 additional head strikes occur with 2-3 strikes occurring after the athlete is unconscious. 41 of 65 knocked out fighters sustained a second head impact injury when hitting the floor. TKO - 17 head strikes occurred before the TKO was called.

The time to return a fight following a TKO – there is no consistent regulatory body. In the United States a fighter may fight in one state and be recommended not to fight for 30 days but may fight 10 days later in another state.

Weight control – many fighters will lose significant weight to fight in a lower weight class. Unfortunately the weigh-in is a big fight public promotion event that occurs the day before the fight. The fighter then may rehydrate in the 24 hours prior to the fight. Many fighters are severely dehydrated at the weigh-in. Recently IV solution hydration has been outlawed but difficult to control.

A fighter using drugs of abuse and stimulation are not uncommon.

Musculoskeletal injuries are similar to what we see in other sports.

MMA fighter advisors are often marginal: usually fellow fighters, boxing and jujitsu coaches, health care workers who train at the same gym.

Except for the very elite, the MMA fighter does not have insurance, there is no off season and frequently seeks holistic treatment. The fighter only gets paid when they fight.

MMA is a very real presence in the world of sport entertainment. Bruce Reider, Editor of the American Journal of Sports Medicine, has summed it up.

“MMA is a very real presence in the world of sport and entertainment. New studies based on more complete data offered by ringside assessment and video analysis would be desirable. By their heroic efforts, MMA fighters gain both gold and glory”.

As medical professionals dedicated to well-being of athletes, we are called upon to question that price of glory. In the United States, there is the Association of Ringside Physicians addressing these issues. They have provided a Ringside Physician certification examination that has been validated by the American College of Sports Medicine. The following websites may also be helpful: www.ringsidearp.org; www.ufc.com; www.sharedog.com, www.fightmedicine.net.